

REMARKS

Claims 1-45 are all the claims pending in the application.

Although the Office Action indicates that the Drawing Correction filed January 14, 1999 is approved, no Drawing Corrections were previously submitted.

In response to the objection to the drawings, Applicant submits the concurrently-filed Request for Approval of Proposed Drawing Corrections with a marked-up version of FIG. 14 showing the proposed corrections.

Claims 4-7 and 16 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly being non-enabled. Also, claims 4-7 and 16 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. The Examiner indicated that claims 4-7 and 16 would be allowable if rewritten to overcome the § 112, second paragraph, rejection, and if claims 4-7 were rewritten to include all of the limitations of the base claim and any intervening claims.

Claims 1-3, 14, 21, 24-26, 29-31, and 33 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Wood et al. (USP 5,851,186, hereafter "Wood"). Claims 8-13 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Takishita et al. (USP 5,331,855, hereafter "Takishita") and Elwell (USP 5,394,035). Claims 22, 23, 27, 28, and 32 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Shinomura et al. (USP 5,891,041, hereafter "Shinomura"). Claim 15 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Senba et al. (JP 404310859A, hereafter "Senba"). Claims 17 and 19 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Takishita.

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Additionally, as confirmed in a telephone conference with the Examiner, the rejections of claims 20, 33, 35, 36, 37, 38, and 41-45, and claims 34, 39, and 40 on pages 8-9 of the Office Action are based on the disclosure of Wood.

Applicant respectfully traverses the rejections as set forth below.

In response to the § 112, first paragraph, rejection of claims 4-7, Applicant directs the Examiner to the specification at page 24, last paragraph - page 27, second full paragraph, which describes the determination of abnormal points in a specific ultrasonic inspection system. A non-limiting example of determining an abnormal point in a system discussed in this excerpt is determining whether or not a probe is normal.

With respect to claim 16, Applicant directs the Examiner to the second paragraph on page 19 through the second full paragraph on page 22, at which point a discussion of diagnosing an ultrasonic system based on the collected data is included. Also, Applicant directs the Examiner to the paragraph bridging pages 17 and 18 of the specification, discussing the collection of data, which is output from the ultrasonic transmission/reception circuit and output from the waveform processing circuit.

In light of the aforementioned excerpts of the present specification, claims 4-7 and 16 are believed to be described in the specification in a manner sufficient to overcome the § 112, first paragraph, rejections thereto.

In response to the § 112, second paragraph, rejections, Applicant refers the Examiner to the comments in reference to the § 112, first paragraph, rejections and adds the following comments. Regarding claims 4 and 6, a description of how the ultrasonic system determines

abnormal points in a specific system is included in the specification on pages 24-27. One example of an abnormal point is an abnormal probe. Other examples are included in the specification at page 28, including an ultrasonic transmission/reception circuit and a waveform processing circuit. As recited in claims 4 and 6, the abnormal point determination is based on first and second test data.

With respect to claim 16, Applicant submits that the claim language makes clear what is being diagnosed (the ultrasonic system) and how it is being diagnosed (based on collected data). A description of this feature of the present invention can be found in the specification at pages 19-21.

Therefore, claims 4-7 and 16 are believed to be definite.

Claims 1-3, 14, 21, 24-26, 29-31, and 33 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Wood.

Wood relates to a medical ultrasonic diagnostic imaging system capable of being accessed over data communication networks. The system of Wood includes a scanhead 12 for transmitting ultrasonic waves and receiving echoes of the waves for processing by an image processor 16. The images are stored in a storage medium 24 and can be output to a system display 26.

Applicant submits that Wood fails to teach or suggest the data storage section claimed by Applicant. The Examiner admits that Wood does not teach a data storage section in the host computer, but asserts that it is inherent that a host computer contains some form of storage to collect imaging information. However, this assertion is not relevant to the present invention,

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because the data storage section is not claimed as being part of the host computer. Rather, the data storage section is one of the components of the claimed ultrasonic inspection system management system.

Furthermore, Wood suffers from the same deficiency as that of the conventional ultrasonic inspection system described in the Applicant's specification. That is, the image store 24 of Wood is in the main body of the ultrasound system 10. By providing the data storage section of the present invention, which is part of the management system rather than part of the system main body, the load on the ultrasonic inspection system is greatly reduced as compared to the conventional ultrasonic inspection system.

Therefore, claim 1 and its dependent claims 2, 3, and 14 are believed to be allowable over Wood. Likewise, claims 21, 24, 25, 31, and 33 are believed to be allowable over Wood for at least the same reasons noted above.

Regarding claims 26, 29, and 30, Applicant submits that Wood does not teach or suggest a system in which each of the probes is provided with a storage device, as claimed in claim 26. Instead, Wood discloses each ultrasound system 10 being provided with a storage medium 24. Thus, claim 26 and its dependent claims 29 and 30 are believed to be allowable over Wood for at least this reason.

Claims 8-13 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Takishita and Elwell.

Takishita relates to an ultrasonic inspection system, which radiates an ultrasonic wave to an object to scan the same and inspects the surface condition of the object and the existence or

absence of any internal defects in the object on the basis of a wave reflected by the object.

Takishita discloses (at column 8, lines 55-58) collecting and storing reference data in a memory of a signal processor 20.

Takishita fails to teach or suggest the limitation of claim 8, 10, 11, and 13 of a reception level comparison means for comparing most recent data of the reception level data, or an average of continuous reception level data pieces containing the most recent data, with a predetermined reception level setup value. Instead, Takishita teaches computing an average value of the reference data and a ratio of the average value to the reference data, and multiplying each of the inspection values Q_1 - Q_n by the ratio of the average value to the reference data.

Furthermore, as admitted by the Examiner, Wood does not teach this aspect of the present invention. Thus, even if the teachings of Wood were to be combined with the teachings of Takishita, the combination would not render claims 8, 10, 11, and 13 obvious.

The Examiner cites Elwell as disclosing features of claims 9, 10, 12, and 13, which the Examiner admits are not taught by Wood, i.e. comparing rate of change data with a predetermined value.

Elwell relates to comparators used to determine when transducers, such as pyroelectric sensors or ultrasonic/acoustic transducers, used for example as motion sensors, have detected the occurrence of an event they have been designed to detect. Such transducers may be used as occupancy sensors to control lighting, heating, cooling and/or other systems in response to the occupancy of a room.

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As discussed in the excerpt of Elwell cited by the Examiner, Elwell determines whether or not a predetermined rate of change has been exceeded by comparing the rate of change between a pair of detectors. The present invention, on the other hand, claims a change comparison means for comparing a difference or a change ratio between most recent data of the reception level data and its immediately preceding reception level data with a predetermined change setup value. Thus, while the present invention is directed to a comparison between different values over time of a reception level data, Elwell is directed to comparisons between two separate detectors at one time. Therefore, the combination of Wood and Elwell fails to teach or suggest all of the limitations of the present invention, as claimed in claims 9, 10, 12, and 13.

Claims 22, 23, 27, 28, and 32 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Shinomura. Applicant submits that Wood fails to teach or suggest the external storage medium of claims 22 and 23, the storage device of claims 27 and 28, and the storage section of claim 32, as noted above with respect to claims 1, 21, and 31, respectively. Furthermore, Shinomura fails to make up for Wood's deficiencies.

Additionally, in the very near future, Applicant will file a certified copy of an English translation of the foreign priority document, which will remove Shinomura as a prior art reference, because Applicant's foreign priority date is prior to Shinomura's U.S. filing date.

Claim 32 is amended herein to correct an error in its dependency to make claim 32 depend from claim 31.

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Claim 15 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Senba. Senba relates to an apparatus for inspecting the operation of an ultrasonic sensor.

Applicant submits that claim 15 is allowable, at least because Senba fails to make up for the deficiencies of Wood noted above.

Also, Senba fails to teach or suggest the component data reception means for receiving predetermined data of the components making up the system main body of claim 15. Instead, Senba discloses a disconnecter operation detecting part which detects the opening and closing of a disconnecter. Thus, claim 15 is believed to be allowable for this additional reason.

Claims 17 and 19 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood in view of Takishita.

Wood does not teach or suggest the probe excitation means or the test signal output means claimed by Applicant in claim 17. The Examiner points to the beamformer 14 as teaching both of these limitations, but Applicant submits that the beamformer 14 discloses neither of these limitations. As noted in Wood at col. 2, line 63 - col. 3, line 9, the beamformer 14 delays and combines electrical echo signals to form coherent beams of echo information. Moreover, Wood is silent concerning both a probe excitation means and a test signal output means. Therefore, claim 17 and its dependent claim 19 are believed to be allowable for at least these reasons.

Claims 20 and 33-45 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Wood.

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However, claim 20 is allowable over Wood for at least the same reasons noted above regarding claim 17, from which claim 20 depends.

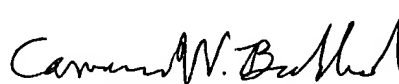
Claim 33 is seen to be allowable too, based on the arguments presented above in response to the 35 U.S.C. § 102 rejection of claim 33.

Finally, claims 34-45 are believed to be allowable based on the arguments presented above in support of the patentability of the claims (i.e., claims 21-24 and 26-29) from which claims 34-45 depend.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

32. (Amended) The ultrasonic inspection system of claim 31, [having a ultrasonic probe data management function] wherein said computer comprises ultrasonic probe inspection means for re-inspecting the ultrasonic probe connected by the transmission line and characteristic data read means for storing the characteristic data provided by said ultrasonic probe inspection means in said storage section via the transmission line.